

REMARKS

This amendment is being made in response to the final Office Action having a mailing date of May 14, 2004, and is being filed along with a Request for Continued Examination (RCE). Claims 16, 23, and 32 are amended. In particular, independent claims 16 and 23 are amended to recite certain distinctive features. No new matter has been added. Claims 1-15 are withdrawn non-elected claims. With this amendment, claims 1-32 are pending in the application.

In the final Office Action, claims 16-32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Guetz (U.S. Patent No. 6,091,777) in view of Sparks (U.S. Patent No. 6,298,385). More specifically, the Examiner acknowledged on page 3 of the final Office Action that Guetz does not meet the requirements for “a plurality of different output video streams.” To supply the missing teachings of Guetz, the Examiner has cited Sparks. For the reasons set forth below, the applicants respectfully request the Examiner to reconsider and to allow all of the pending claims. More particularly, there is no motivation to combine the references, and even if such references were combined, the result would still not meet the limitations found in the claims.

A disclosed embodiment will now be discussed in comparison to the applied references. Of course, the discussion of the disclosed embodiment, and the discussion of the differences between the disclosed embodiment and subject matter described in the applied references, do not define the scope or interpretation of any of the claims. Instead, such discussed differences are intended to merely help the Examiner appreciate important claim distinctions discussed thereafter.

As described in the present application and in the Applicants’ amendment previously filed on March 3, 2004, providing video data to client devices in a wireless environment is very problematic. There are multiple different formats that can be supported. Moreover, different types of client devices have different types of characteristics, such as processing capability, display screen resolution, memory capacity, and so forth. Another problem is attributable to communication channel characteristics. As is known by persons skilled in the art, the characteristics of any given communication channel (such as the bandwidth

of the channel) can dynamically change based on a number of factors, including number of users, environmental conditions, integrity of the channel, noise level, and other factors. These various problems make it impractical to send a single output video stream (*e.g.*, an output video stream having the same format, resolution, bit rate, frame rate, etc.) to all of the client devices in a wireless environment, since an output video stream that may be suited for one wireless device may be ill-suited for another wireless device.

Accordingly, an embodiment of the invention provides a technique to adapt a single input video stream into a plurality of different output video streams. Each output video stream is optimized according to the capabilities of the client device that will be receiving that particular output video stream and also optimized based on the conditions of the communication channel that will be used to carry that video stream to the respective client device(s). For example, the bit rates of different output video streams can vary from one output video stream to another, based on either or both the capabilities of the client devices and the conditions of the communication channel(s). Different multiple output video streams can thus be simultaneously served to multiple different client devices. Therefore, it is possible for different client devices to receive video streams that have different resolution, frame rate, bit rate, color, encoding formats, and the like, with each of these video streams thus being customized or optimized to their respective client devices. In such implementations, for example, a particular client device can receive a higher-quality output video stream, instead of being constrained to a lower resolution, lower bit rate, etc. that may be required for and separately sent to a client device having lesser capabilities.

In one example embodiment described with reference to Figures 3-6B of the present application, the selection of which particular output video streams to send to respective client devices (such as to client devices having capabilities that match the characteristics of a particular output video stream) is made at the server side rather than the client side, such as at a server or gateway device. Such an embodiment is useful due to its transparency to the user, since the user would not be required to make the initial selection of a particular output video stream and then to select a different output video stream as channel conditions and/or client device characteristics change.

Guetz, in contrast to what the applicants have disclosed, provides a scalable video delivery system, which provides a single/same output video stream to all client devices. *See, e.g.*, col. 9, lines 18-22 of Guetz. There are not multiple unique output video streams that are produced using different transcoding processes, such as disclosed by the applicants. More specifically, Guetz provides a base video layer and additional layers of video data that are multiplexed to provide a single data stream that can be distributed. A base visual level of Guetz is provided along with higher levels of video resolution. *See, e.g.*, the Abstract of Guetz. Similarly, Guetz provides client-side processing as compared to server-side processing. *See, e.g.*, column 5, lines 64-66 of Guetz wherein the recipient user may determine the level of visual image desired and select the layers of data streams to be utilized. Therefore, it is the client device that makes the determination and the selection of which layers to use, and not the server in Guetz.

A significant distinction between Guetz and what is disclosed by the present applicants is that the bit rate of the single output data stream of Guetz is commensurate with the available bandwidth of the transmission channel and to the receiver resources of the least capable client user. *See, e.g.*, column 6, lines 34-37, and the abstract of Guetz. Therefore, there is inefficient customization and optimization in Guetz. Since each client device receives the same video stream from the server, wherein the video stream is commensurate with the capabilities of the least capable client user, only those client devices that have capabilities comparable with the least capable client user will receive optimum transmission. The other client devices will be receiving video data that is well below their optimum quality capabilities. The technique of Guetz is therefore clearly different from what the applicants have disclosed, since only a single identical output video stream is provided to all client devices by Guetz.

Moreover, since the single output stream of Guetz has a bit rate that is commensurate with the client device having the least capabilities, the output stream of Guetz is necessarily based on client device capabilities. The output stream of Guetz is thus not based on both channel conditions and client device characteristics. Indeed, the system of Guetz would necessarily continue to send an output stream that has a bit rate corresponding to the least

capable client device, even if channel conditions (due to noise, congestion, etc.) might dictate that the bit rate be changed to a significantly lower (or higher) bit rate.

Sparks simply discloses a system in which multimedia files are changed based on modem connections (*i.e.*, channel conditions). *See, e.g.*, col. 2, lines 45-51 of Sparks. For example, different multimedia files are created for 14.4 kps, 26.6 kps, and ADSL connections. *See, e.g.*, the Abstract and Figure 1 of Sparks. Sparks is completely silent with regards to changing characteristics of output video streams (such as resolution, color scheme, encoding format, and the like) based on both channel conditions and client device capabilities.

Moreover, Sparks uses a system in which only a single media file is served at any one time to a single client device. Sparks does not serve multiple output video streams (having different characteristics) to multiple different client devices.

A. No motivation of teaching to combine Guetz with Sparks

In rejecting claims 16 and 23, the Examiner has used Sparks to supply the missing teachings of Guetz, namely the recitation of a “plurality of different output video streams.” Claims 16 and 23 further recite that the output video streams have “different characteristics.” This combination by the Examiner is improper for the following reasons.

First and as discussed above, Guetz teaches and requires that the same bit rate be provided all client devices. More specifically, Guetz provides a single output stream having one bit rate that is commensurate with the least capable client device. Thus, all client devices receive the same bit rate, and can choose one particular layer in the single output stream that has a resolution commensurate with their particular resolution capability.

As noted above, Sparks provides media files with different bit rates, and a client device can select to receive one of the media files having the appropriate bit rate. A person skilled in the art, having the reference of Guetz that teaches and requires the use of one bit rate (to be used for all client devices and which is commensurate with the least capable client), would not look to Sparks, which teaches different bit rates.

Second and also as discussed above, Guetz uses a technique in which it is the client device that makes the determination and the selection of which layer(s) from the single output video stream to use, and it is not the server that makes such a selection. More

particularly, Guetz downloads a CODEC into the client device, and that CODEC is then used for the layer selection and other video processing. *See, e.g.*, col. 5, lines 61-63 of Guetz. In contrast, Sparks uses a technique in which the network server selects a better transmission speed. *See, e.g.*, col. 3, lines 17-19 of Sparks.

A person skilled in the art would not look to the server-selection-based system of Sparks, to modify the client-selection-based system of Guetz such that the modified Guetz system provides server selection of output streams to send to client devices. Client-based and server-based systems operate and are structured differently. For example, in a client-based system, processing is performed at the client side so as to reduce processing load at the server side. Such a client-side architecture is the fundamental purpose of Guetz, wherein a single output stream has multiple different selectable layers, which can be selected by the various client devices based on their resolution capabilities. The use of a single stream forces the client devices to perform the video processing load and also avoids congesting a transmission channel with multiple streams. *See, e.g.*, col. 2, lines 61-64 of Guetz.

B. The claims distinguish over Guetz and Sparks, singly or in combination

Based on the preceding discussion, there is no teaching or motivation to combine Guetz and Sparks, and therefore, claims 16 and 23 are allowable over these references. Nevertheless, claims 16 and 23 are amended herein to further distinguish over the references, and are thus made further allowable:

Independent claims 16 and 23 are amended to recite “multiple different output video streams” and that the output video streams include “different bit rates that correspond to both multiple different client device capabilities and channel conditions.” These recitations distinguish over Guetz because Guetz does not disclose, teach, or suggest: 1) multiple different output video streams, 2) different bit rates, and/or 3) different bit rates that correspond to both multiple different client device characteristics and channel conditions. At most, Guetz’s same bit rate corresponds to device capabilities of a single client device. These recitations also distinguish over Sparks, since the bit rates of Sparks correspond to only channel conditions and not client device capabilities. Moreover, Sparks only sends a single output signal at any one time, and not multiple different output video streams as recited in claims 16 and 23.

Claims 16 and 23 are also amended to recite server-side selection of “multiple output video streams to send to corresponding multiple client devices and which correspond to capabilities of such client devices, including server selection of output video streams having the different bit rates that correspond to both multiple different client device capabilities and channel conditions.” These recitations distinguish over Guetz because Guetz does not disclose, teach, or suggest: 1) selection of multiple output video streams to send to multiple client devices, 2) server selection of which output video streams to send, and/or 3) that the output video streams have bit rates that correspond to multiple different client device capabilities... These recitations distinguish over Sparks, since the bit rates of Sparks are based on channel conditions, and not on both channel conditions and device capabilities. Moreover, Sparks does not disclose, teach, or suggest multiple output video streams being served at any one time to corresponding multiple different client devices.

Dependent claim 32 is amended to recite both client device characteristics and channel conditions. The cited references provide an output signal having characteristics that are not based on both of these qualities. Therefore, amended claim 32 is further allowable over the cited references.

C. Supplemental Information Disclosure Statement

A Supplemental Information Disclosure Statement, form PTO-1449, and copies of the references listed therein are included along with this amendment. These references were cited from co-pending application(s) owned by the assignee of the present application. All of the claims in the present application distinguish over these cited references. It is kindly requested that the Examiner consider these references and return an initialed copy of the form PTO-1449 along with the next communication to confirm consideration of the references.

D. Conclusion

The requisite fee for the RCE and extension of time are included along with this amendment.

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, given the above amendments and accompanying remarks, the independent claims are now in condition for allowance. The

dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

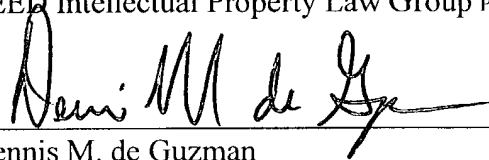
If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 622-4900.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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